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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,507	09/14/2000	Richard L. Smith	SUR-3645	2262
1444	7590	10/06/2003	EXAMINER	
BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			BARRY, CHESTER T	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/662,507	<b>Applicant(s)</b> SMITH, RICHARD L.	
	<b>Examiner</b> Chester T. Barry	<b>Art Unit</b> 1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 7/29/03.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Di position of Claims

- 4) ☒ Claim(s) 1-4 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All   b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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Claims 1 - 4, 9-13 are rejected under 35 USC § 103 as unpatentable over Logan in view of Yokomori. USP 6214607 to Logan describes addition of a nitrogen source to a contaminated groundwater stream recirculated through a solid-supported bioreactor comprising hydrogen-oxidizing Proteobacteria. Hydrogen gas is added to the column. The hydrogen is locally produced electrolytically. The water is filtered through a sand filter. Yokomori teaches that ammonium nitrate is a conventional nitrogen source for bacterial reactions. It would have been obvious to have used ammonium nitrate instead of ammonium phosphate as the nitrogen source because of Yokomori's teaching. Per claim 4, it would have been obvious to have isolated the bacteria from any natural aqueous source known to contain perchlorates, such as perchlorate-contaminated groundwater. Proteobacteria meet the purple, non-sulfur, phototrophic limitations of claim 2, as shown by USP 5352608 to Kaplan.

Applicant argues at page 8 of the response that there is "no motivation to add nitrate ion to the bioreactor of the present invention, as this would make the denitrification more difficult." Applicant's argument is not persuasive. The issue is not whether it would have been obvious to have added nitrate ion to **applicant's** process, but rather whether it would have been obvious to have substituted ammonium nitrate for Logan's use of ammonium phosphate as a nitrogen source. The examiner's position is that such a modification of Logan's invention would have been obvious in view of Yokomori. This conclusion is especially clear in light of applicant's admission that "Yokomori discloses that ammonium nitrate is a conventional nitrogen source for bacterial reactions"

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(response at page 7). Applicant has offered no reason why substitution of one conventional nitrogen source, i.e., ammonium nitrate, for another nitrogen source taught in the prior art, i.e., ammonium phosphate, would not have been suggested to the person having ordinary skill in the art. It is only through impermissible hindsight – gleaned from applicant's own disclosure – which might have dissuaded the hypothetical person having ordinary skill in the art NOT to use a nitrate salt of ammonium. Of course, as other members of the patent bar have often reminded me, using applicant's own disclosure in one's obviousness analysis is impermissible under 35 U.S.C. Sec. 103(a).

Logan's GR-1 proteobacterium is capable of denitrification under the anoxic conditions of Logan's process. See, for example, USP 6423533 to Gearheart col 3 line 34 or USP 6077429 to Frankenberger col 5 line 1.

See also Frankenberger's description that "potable water" as having nitrate concentration below 10 mg/L. Col 3 line 45. Therefore, claim 14 is objected to as being dependent on a rejected base claim (13), but would be allowed if presented in independent form insofar as it would not have been obvious to have reduced the nitrate concentration of "drinking water," i.e., water which already meets a nitrate limit. There's no motivation to "go the extra mile," i.e., remove nitrate, from "drinking water" which – by definition – already meets the nitrate standard.

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

  
**CHESTER T. BARRY**  
**PRIMARY EXAMINER**

703-306-5921